FIRESAFE / FSW

Firestop Wrap for Penetration Seals

TECHNICAL DATA SHEET

Date: 30/07/2025
Rev.: 0
Prepared by: PP
Checked by: HKE
European approvals:
ETA No: 25/0234 Penetration Seals
DoP No.: FS/PP/FSW- 30/07/2025
CE 2821

PRODUCT DESCRIPTION

FIRESAFE / FSW is a graphite-based firestop wrap provided in 10 m rolls.
FIRESAFE / FSW is used for fireproof penetration seals for flammable pipes and non-flammable pipes with flammable pipe insulation.
FIRESAFE / FSW expands when exposed to heat, creating a fireproof and smokeproof barrier to adjacent rooms.

Fire resistance
≤ 240 minutes

Pipe diameter
Plastic pipes ≤ (d) Ø 160 mm
Metal pipes ≤ (d) Ø 315 mm

Lifespan
25 years

Area of use
Can be used outdoors. See details

Type of pipe installations or equivalent
✓ PVC-U, PVC-C, PP, PE, PE-HD, ABS, SAN+PVC
✓ Noise-insulating plastic pipe: REHAU Raupanio plus, Geberit PP Silent-20dB, Girpi Friaohon, Marley Silent, Pipelife Master 3, PhonEX AS, Wavin SiTech+, Wavin AS, Poloplast NG, POLO-KAL 3S, Valsir Triplus, DykaSono, Upnor Decibel
✓ Aluminium composite pipes: PE-Xb, PE-Xe, PE-RT Henco, Uponor, Wavin Tigris, Geberit Mepla, REHAU Rautitan
✓ Fibre-reinforced composite pipes Aquatechnik Fusio PP-R 80, Aquatechnik Fusio PP-RCT, Aquatherm Blue-S, Aquatherm Blue-MF, Aquatherm Red-MF, Aquatherm Green-MF, Aquatherm Green-MS, Aquatherm Lilac-S, Aquatherm Grey-MS and Aquatherm Orange M, Banninger PP-R, Banninger Climatec PP-RCT and Banninger Watertec PP-RCT
✓ Copper, cast iron, and steel pipes
✓ Plastic pipe with cables
Properties
✓ CE marked
✓ Halogen-free
✓ Environmentally friendly and user-friendly
✓ Water resistant

Structures
✓ Masonry and cast wall structures, density ≥ 400 kg/m³
✓ Insulated and non-insulated plaster walls ≥ 100 mm
✓ CLT (cross-laminated timber structures) walls ≥ 100 mm
✓ CLT (cross-laminated timber structures) floors ≥ 140 mm
✓ Sandwich panel walls ≥ 100 mm

Types of pipe insulation or equivalent
✓ ArmaFlex Ultima. Fire rating ≤ B-s1, d0
✓ Kaiflex KK Plus S1. Fire rating ≤ B-s2, d0
✓ ArmaFlex AFEVO. Fire rating ≤ B-s3, d0
✓ Kaiflex KK Plus S2/ST. Fire rating ≤ B-s3, d0
✓ Kaiflex HT S2. Fire rating ≤ C-s2, d0
✓ ArmaFlex NH / SH / HT. Fire rating ≤ D-s3, d0
Properties
✓ In combination with FIRESAFE / FSA Firestop Acrylic
✓ In combination with FIRESAFE FSB1 and FSB2 Boards
✓ In combination with A1 gypsum-based fire sealant

Packaging:

FIRESAFE / FSW	Dimensions	Box inner	Box outer	Pallet	Item no.
Roll	10000 x 50 x 1.8 mm	1 pcs.	8 pcs.	480 pcs.	100.206

Scan QR code for detailed information

Firesafe AS, Robsrudskogen 15, Postboks 6411 Etterstad, NO-0605 Oslo Tel: +47 22 72 20 20. Tel.: +47 09 110. E-mail: firmapost@firesafe.no

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Contents:

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1. Technical data

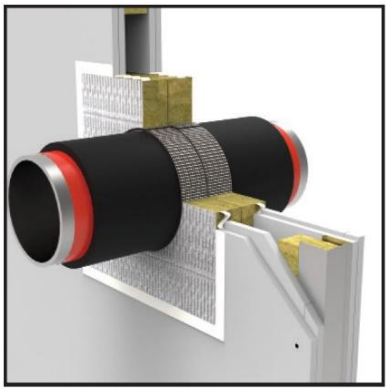
FIRESAFE / FSW	EAN code 7070800102337
Condition	Ready to use, Fire Wrap
Colour	Dark grey - Anthracite
Storage temperature during transport	+5 °C to +30 °C
Temperature during application	0 °C to +50 °C
Shelf life	At least 25 years in unopened plastic packaging and at temperatures from +5 °C to +30 °C
Permanent temperature resistance	0° C to + 80°C
Graphite weight	1.3 kg/m^2 per mm thickness
Graphite density	1300 kg/m^3
Usage category [1)]	Type Y1 in accordance with EAD 350454-00-1104
Reaction to fire	Class E in accordance with EN 13501-1
European approvals	ETA 25/0234. Penetration Seals
Test standards	Tested in accordance with EN 1366-3. Penetration Seals
Product lifespan	Minimum 25 years
Fire seal product in combination with FSW for small openings	FIRESAFE / FSA Firestop Acrylic
Fire seal product in combination with FSW for larger openings	FIRESAFE / FSB Firestop Board. Size (≤ 1200 x 2400 mm)
Fire seal product in combination with FSW for larger openings	Gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1. Size (≤ 1200 x 2400 mm)

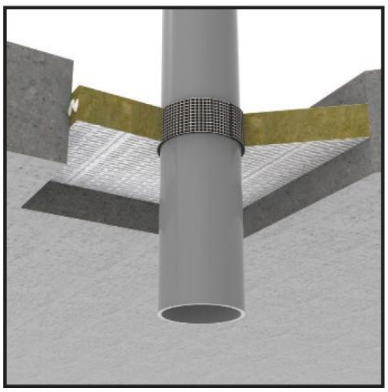
[1)] The usage category is intended for use at temperatures below 0°C with exposure to UV (occasional) but without exposure to rain (TR 024, type Y_1).

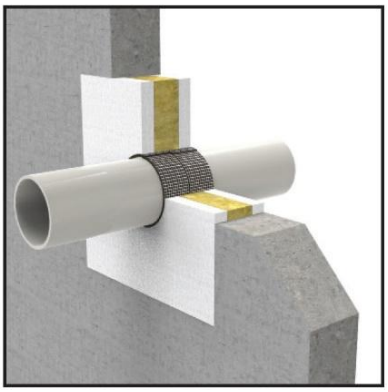
2. Acoustic properties

The noise insulation value only applies to the fire sealant and not to the other elements of the structure.

- ✓ FIRESAFE / FSW installed to FIRESAFE / FSB Firestop Board system — Rw 28 dB
- ✓ FIRESAFE / FSW installed in gypsum-based fire sealant. Rating A1 — Rw 37 dB







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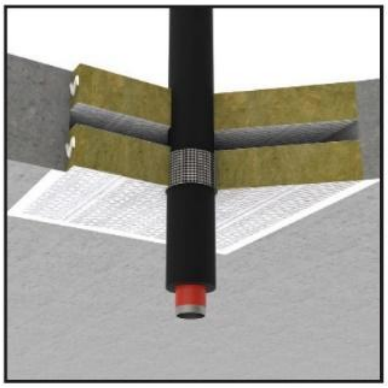
3. Performance overview

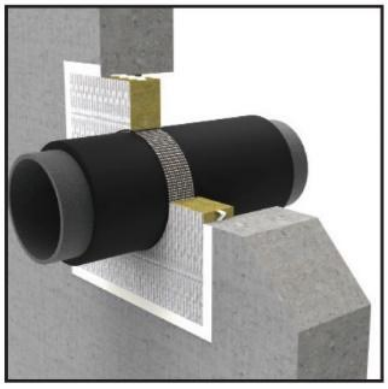
FIRESAFE / FSW installed to FIRESAFE / FSB Firestop Board system

FIRESAFE product	Pipe type	Pipe diameter Ø x t [mm]	Insulation type	Structure			Rating in minutes
				FW-100	RW-100	RF-150	
FIRESAFE / FSB Fire seal system	Plastic pipes [1]	≤ 110	Non-insulated			✓	EI 120. U/C
		≤ 125		✓	✓		
		≤ 160		✓	✓		EI 90. U/C
	Noise-dampening pipes [2]	≤ 110				✓	EI 240. U/U
		≤ 125				✓	EI 240. U/C
		≤ 160		✓	✓		EI 120. U/U
	Fibre-reinforced composite pipes [3]	≤ 110		✓	✓		EI 120. U/C
	Copper, cast iron, and steel pipes	≤ 324	Elastic [4]	✓	✓		EI 120. C/U
		≤ 168				✓	

[1] Permitted plastic pipes (or equivalent)	[3] Permitted fibre-reinforced composite pipes (or equivalent)
✓ PE(-HD), PE-X, ABS, SAN+PVC, PP, PVC(-U/-C) pipes	✓ Aquatechnik Fusio PP-R 80, Aquatechnik Fusio PP-RCT, ✓ Aquatherm Blue-S, Aquatherm Blue-MF, Aquatherm Red-MF, ✓ Aquatherm Green-MF, Aquatherm Green-MS, ✓ Aquatherm Green-S, Aquatherm Lilac-S, Aquatherm Grey-MS and Aquatherm Orange M, Bänninger PP-R, Bänninger Climatec PP-RCTen Bänninger Watertec PP-RCT
[2] Permitted noise-dampening plastic pipes (or equivalent) [2]	**[4] Permitted elastic insulation (or equivalent)**
✓ Coes PhoNoFire, Coestilen BluePower, Geberit Silent PP, Geberit Silent dB 20 ✓ Girpi Friaphon, Marley Silent, Pipelife Master 3, PhonEX AS ✓ Poloplast POLO-KAL NG, Poloplast POLO-KAL 3S, Skolan dB, Raupiano Plus ✓ Valsir Triplus, Wavin SiTech+, Wavin AS, DykaSono, Uponor Decibel	✓ ArmaFlex Ultima. Fire rating ≤ B-s1, d0 ✓ Kaiflex KK Plus S1. Fire rating ≤ B-s2, d0 ✓ ArmaFlex AFEVO. Fire rating ≤ B-s3, d0 ✓ Kaiflex KK Plus S2/ST. Fire rating ≤ B-s3, d0 ✓ Kaiflex HT S2. Fire rating ≤ C-s2, d0 ✓ ArmaFlex NH / SH / HT. Fire rating ≤ D-s3, d0

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
		RF-150:	Masonry cast floors with a thickness of ≥ 150 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		





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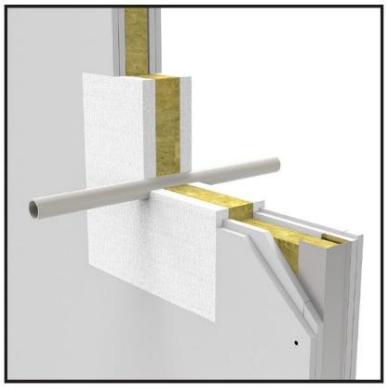
Performance overview

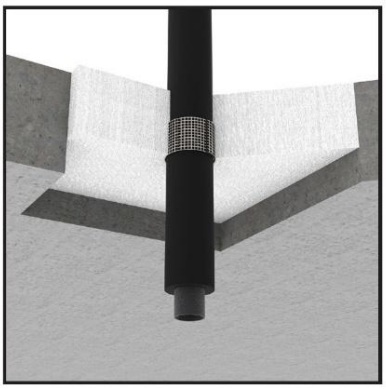
FIRESAFE / FSW installed in FIRESAFE gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1

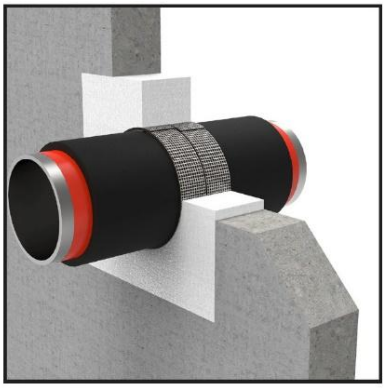
FIRESAFE product	Pipe type	Pipe diameter Ø x t [mm]	Insulation type	Structure			Rating in minutes
				FW-100	RW-100	RF-150	
FIRESAFE gypsum-based fire sealant	Plastic pipes [1]	≤ 110	Non-insulated	✓	✓		EI 120. U/U
		≤ 160				✓	EI 240. U/U
	Plastic pipes [1] with cables	≤ 110		✓	✓		EI 90. U/C
						✓	EI 180. U/C
	Fibre-reinforced pipes [3]	≤ 160				✓	EI 240. U/C
	Copper, cast iron, and steel pipes	≤ 324	Elastic [4]	✓	✓		EI 120. C/U
						✓	EI 180. C/U

[1] Permitted plastic pipes (or equivalent)	[3] Permitted fibre-reinforced composite pipes (or equivalent)
✓ PE(-HD), PE-X, ABS, SAN+PVC, PP, PVC(-U/-C) pipes	✓ Aquatechnik Fusio PP-R 80, Aquatechnik Fusio PP-RCT, ✓ Aquatherm Blue-S, Aquatherm Blue-MF, Aquatherm Red-MF, ✓ Aquatherm Green-MF, Aquatherm Green-MS, ✓ Aquatherm Green-S, Aquatherm Lilac-S, Aquatherm Grey-MS and Aquatherm Orange M, Bänninger PP-R, Bänninger Climatec PP-RCTen Bänninger Watertec PP-RCT
[2] Permitted noise dampening plastic pipes (or equivalent)	**[4] Permitted elastic insulation (or equivalent)**
✓ Coes PhoNoFire, Coestilen BluePower, Geberit Silent PP, Geberit Silent dB 20 ✓ Girpi Friaphon, Marley Silent, Pipelife Master 3, PhonEX AS ✓ Poloplast POLO-KAL NG, Poloplast POLO-KAL 3S, Skolan dB, Raupiano Plus ✓ Valsir Triplus, Wavin SiTech+, Wavin AS, DykaSono, Uponor Decibel	✓ ArmaFlex Ultima. Fire rating ≤ B-s1, d0 ✓ Kaiflex KK Plus S1. Fire rating ≤ B-s2, d0 ✓ ArmaFlex AFEVO. Fire rating ≤ B-s3, d0 ✓ Kaiflex KK Plus S2/ST. Fire rating ≤ B-s3, d0 ✓ Kaiflex HT S2. Fire rating ≤ C-s2, d0 ✓ ArmaFlex NH / SH / HT. Fire rating ≤ D-s3, d0

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
		RF-150:	Masonry cast floors with a thickness of ≥ 150 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		







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Performance overview

FIRESAFE / FSW installed in small openings, directly installed in structure

FIRESAFE product	Pipe type	Pipe diameter Ø x t [mm]	Insulation type	Structure			Rating in minutes
				FW-100	RW-100	RF-150	
FIRESAFE / FSW. Smoke proofing with FIRESAFE / FSA.	Plastic pipes [1]	≤ 110	Non-insulated	✓	✓	✓	EI 120. U/C
						✓	EI 240. U/C
		≤ 125		✓	✓	✓	EI 120. U/C
		≤ 160		✓	✓	✓	EI 90. U/C
						✓	EI 240. U/C
	Plastic pipes [1] with cables	≤ 110		✓	✓	✓	EI 90. U/C
	Sound-dampening plastic pipes [2]			✓	✓	✓	EI 120. U/U
		≤ 125		✓	✓	✓	EI 120. U/C
		≤ 160		✓	✓	✓	EI 120. U/C
	Fibre-reinforced composite pipes [3]	≤ 110		✓	✓	✓	
	Copper, cast iron, and steel pipes	≤ 324	Elastic [4]	✓	✓	✓	EI 120. C/U

[1] Permitted plastic pipes (or equivalent)	[3] Permitted fibre-reinforced composite pipes (or equivalent)
✓ PE(-HD), PE-X, ABS, SAN+PVC, PP, PVC(-U/-C) pipes	✓ Aquatechnik Fusio PP-R 80, Aquatechnik Fusio PP-RCT, ✓ Aquatherm Blue-S, Aquatherm Blue-MF, Aquatherm Red-MF, ✓ Aquatherm Green-MF, Aquatherm Green-MS, ✓ Aquatherm Green-S, Aquatherm Lilac-S, Aquatherm Grey-MS and Aquatherm Orange M, Bänninger PP-R, Bänninger Climatec PP-RCTen Bänninger Watertec PP-RCT
[2] Permitted noise dampening plastic pipes (or equivalent)	**[4] Permitted elastic insulation (or equivalent)**
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E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
		RF-150:	Masonry cast floors with a thickness of ≥ 150 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		

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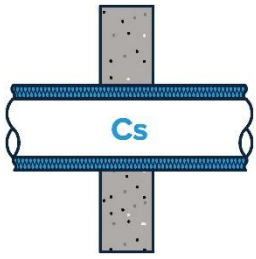
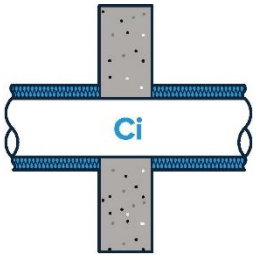
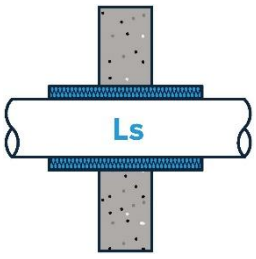
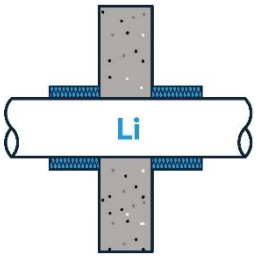
4. Pipe insulation (Configuration)

As different insulations serve different purposes, they may be placed around pipes as insulation using various configurations.
Take this into account when applying fire sealant to these pipes. Possible configurations are shown below:

1. Continuous pipe insulation		2. Local pipe insulation	
Cs: Continuous pipe insulation, on both sides, also in the penetration itself.	**Ci:** Continuous pipe insulation, on both sides, excluding the penetration itself.	**Ls:** Local pipe insulation in the specified length locally on both sides, also in the penetration itself.	**Li:** Local pipe insulation in the specified length locally on both sides, excluding the penetration itself.
			

5. Permitted insulation materials

FIRESAFE /FSW has undergone thorough testing with a variety of insulation materials. The permitted insulation materials are displayed in the table below. For general information, see our ETA 25/0234 on our webpage **www.firesafe.no**.

Insulation type	Pipe type	[1] Permitted
Stone wool insulation Fire rating A1 in accordance with EN 13501-1	✓ Copper pipes ✓ Stainless steel pipes and steel pipes ✓ Cast-iron pipes	✓ Stone wool, at least 80 kg/m³ or equivalent
Elastic insulation Fire ratings BL-s3,d0 of B-s3,d0 to D-s3,d0 or DL- s3,d0 in accordance with EN 13501-1.	✓ Stainless steel pipes and steel pipes ✓ Cast-iron pipes ✓ Fibre-reinforced composite pipes ✓ Multilayer pipes	✓ ArmaFlex AF (EVO) / XG / SH / NH / HT / Ultima ✓ Kaiflex KK Plus S1 / S2 / ST / HT ✓ K-Flex EC (AD) / ST / SK / SRC (Eco) ✓ Or equivalent

[1] Insulation materials must possess at least the same fire rating as tested in accordance with EN 1350561-1.

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6. Service support, suspension systems and distances

Wall figure a: The distance to the nearest or first service support for all types of technical installations may be ≤ 450 mm from the fire partition.

Floor figure b: The distance to the nearest or first service support for all types of technical installations may be ≤ 450 mm from the fire partition.

Figure a.

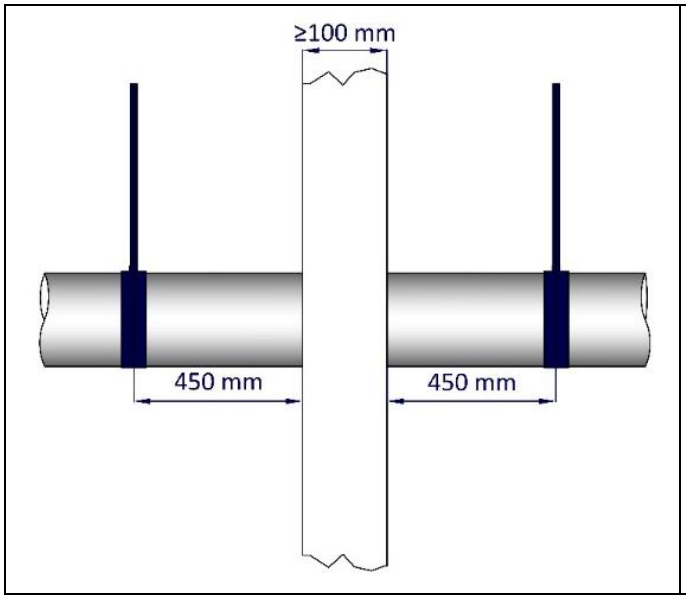
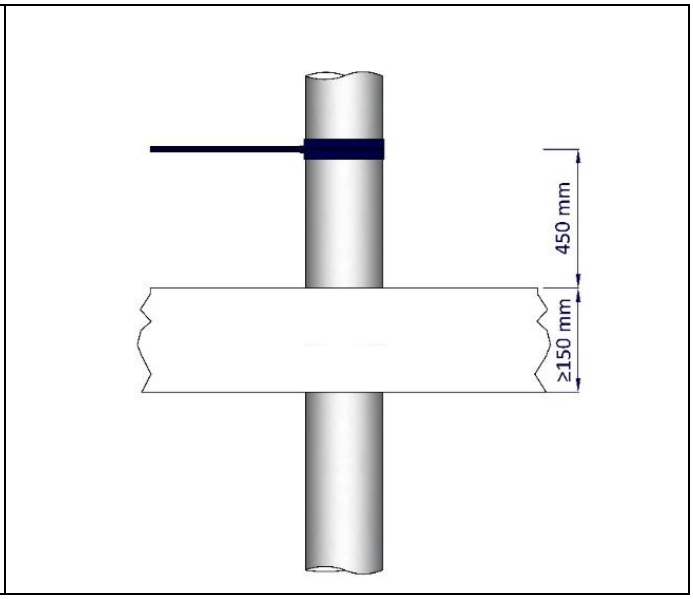


Figure b.



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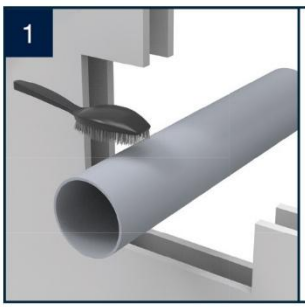
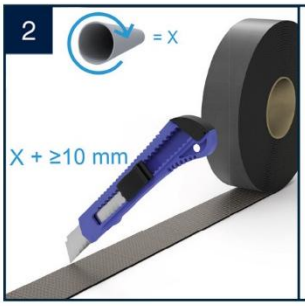
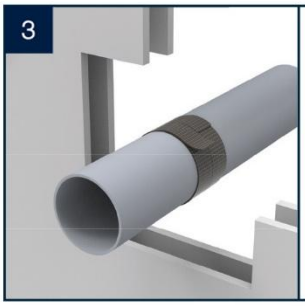
7. Installation instructions



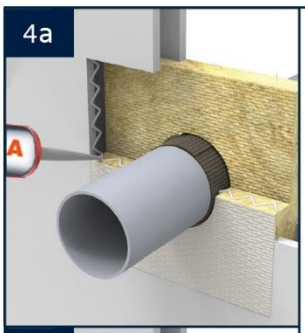
Ensure that the pipe penetration and gap are cleared of any dust, debris, or grease.

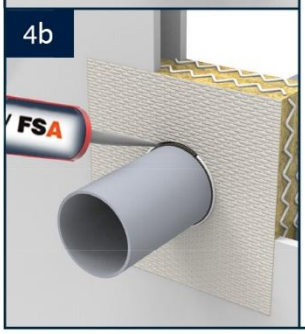


Measure the circumference of the pipe. FIRESAFE / FSW is cut from the roll - cut to the appro-priate size for the pipe using scissors or a knife. FIRESAFE / FSW must be installed close under the pipe with an overlap of at least 10 mm in the joint. Fasten FIRESAFE / FSW with tape to keep FSW in place around the pipe.



Install FIRESAFE / FSW with the correct number of layers required for your pipe type.





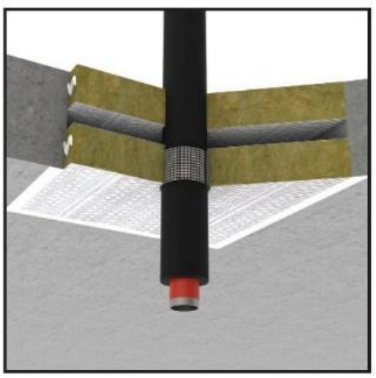
Seal the gap between FIRESAFE / FSW and the structure or between FSW and FSB with FIRESAFE / FSA Firestop Acrylic.

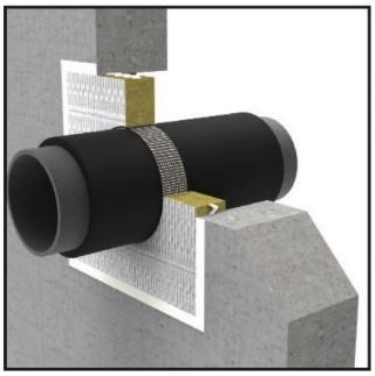
Note:

Install FIRESAFE / FSW precisely in alignment with the fire seal product, sticking no more than 2 mm from the seal or the structure.

Fill out the fire rating label and glue it next to the fire seal.

Always install FIRESAFE / FSW from both sides of the wall, in alignment with the seal or the structure on both sides.
Install FIRESAFE / FSW from one side in floors, in alignment with the seal or the structure on the underside of the floor.





For further information, see ETA 25/0234 or the Firesafe webpage **www.firesafe.no**.

FIRESAFE / FSW

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8. Consumption table

Length in [mm] including overlaps FIRESAFE / FSW with number of layers for flammable plastic pipes.

Plastic pipe diameter Ø [mm]	Number of layers: 1	Number of layers: 2	Number of layers: 3	Number of layers: 4	Number of layers: 5	Number of layers: 6
Outer Ø [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]
40	136	273	421	581	751	934
50	137	335	515	706	908	1122
75	246	493	751	1020	1301	1593
110	356	712	1081	1460	1851	2253
125	403	807	1222	1649	2087	2536
160	515	1027	1552	2088	2636	3196

Length in [mm] including overlaps FIRESAFE / FSW with number of layers for non-flammable metal pipes, insulated with 13 mm pipe insulation.

Metal pipe diameter Ø [mm]	Number of layers: 1	Number of layers: 2	Number of layers: 3	Number of layers: 4	Number of layers: 5	Number of layers: 6
Outer Ø [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]
22	161	323	496	681	877	1084
35	202	405	619	844	1081	1329
54	261	524	798	1083	1380	1688
114.3	451	903	1366	1841	2327	2824
168.3	620	1242	1875	2520	3175	3842
219.1	780	1561	2354	3158	3973	4800
324	1110	2220	3343	4476	5621	6777

Length in [mm] including overlaps FIRESAFE / FSW with number of layers for non-flammable metal pipes, insulated with 32 mm pipe insulation.

Metal pipe diameter Ø [mm]	Number of layers: 1	Number of layers: 2	Number of layers: 3	Number of layers: 4	Number of layers: 5	Number of layers: 6
Outer Ø [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]	Length of FSW [mm]
22	280	562	854	1159	1474	1801
35	321	643	977	1322	1878	2046
54	381	763	1156	1561	1977	2404
114.3	570	1142	1724	2318	2924	3541

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FIRESAFE / FSW

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9. Example with sizing table for number of FIRESAFE / FSW layers around plastic pipes

FIRESAFE / FSW installed to FIRESAFE / FSB1 Firestop Board system 2 x 50 mm in plaster and masonry cast walls.

Table A.1.1: Plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 40	2.3 - 3.7	FIRESAFE / FSW (2 layers)	**EI 120 U/U**
	≤ Ø 110	2.7 - 10		**EI 120 U/C**
PP	≤ Ø 40	2.3 - 3.7		**EI 120 U/U**
		5.5		**EI 120 U/C**
	≤ Ø 110	3.4		
PVC(-U/-C)	≤ Ø 40	1.8 - 3.7		**EI 120 U/U**
	≤ Ø 110	1.6		**EI 90 U/C, E 120 U/C**
		1.6 - 8.1		**EI 90 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 125	3.9	FIRESAFE / FSW (3 layers)	**EI 120 U/C**
		3.9 - 4.8		**EI 90 U/C, E 120 U/C**
PP		3.1		**EI 120 U/C**
		3.1 - 11.4		**EI 90 U/C, E 120 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PP	≤ Ø 110	10.0	FIRESAFE / FSW (4 layers)	**EI 120 U/U**
		10.0 - 14.6		**EI 90 U/U**
	≤ Ø 160	14.6		
PE(-HD) / PE-X / ABS / SAN+PVC				**EI 90 U/C**
PVC(-U/-C)		5.0		**EI 90 U/C, E 120 U/C**
		5.0 - 14.6		**EI 90 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 125	11.4	FIRESAFE / FSW (5 layers)	**EI 120 U/U**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm

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FIRESAFE / FSW installed to FIRESAFE / FSB1 Firestop Board system 2 x 50 mm in plaster and masonry cast walls.

Table A.1.2: Plastic pipes with cables

Type of plastic pipes with cables	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Cable type	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 110	2.7 - 10	FIRESAFE / FSW (2 layers)	Cable ≤ Ø 80 mm (single or bundled). Cable ≤ Ø 21 mm bundled ≤ Ø 100 mm	**EI 90 U/C** **E 120 U/C**
PP					
PVC (U/C)					

Table A.1.3: Sound-dampening plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Raupiano Plus	≤ Ø 50	1.8 - 2.7	FIRESAFE / FSW (2 layers)	**EI 120 U/C**
	≤ Ø 110	2.7		
Geberit Silent dB20	≤ Ø 56	3.2 - 6.0		
	≤ Ø 110	6.0		
Wavin SiTech+	≤ Ø 40	2.0		**EI 120 U/U**
	≤ Ø 40	2.0 - 3.4		**EI 120 U/C**
	≤ Ø 50	1.8		**EI 120 U/U**
	≤ Ø 110	3.4		**EI 120 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Raupiano Plus	≤ Ø 110	2.7	FIRESAFE / FSW (4 layers)	**EI 120 U/U**
	≤ Ø 160	4.0		**EI 90 U/C, E 120 U/C**
Poloplast PoloKal NG	≤ Ø 110	3.4		**EI 120 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Raupiano Plus	≤ Ø 160	3.9	FIRESAFE / FSW (6 layers)	**EI 120 U/U**
Poloplast PoloKal NG	≤ Ø 160	4.9		**EI 90 U/C, E 120 U/C**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm

FIRESAFE / FSW

Firestop Wrap for Penetration Seals

10. Example with sizing table for number of FIRESAFE / FSW layers around plastic pipes

FIRESAFE / FSW installed in FIRESAFE gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1. Fire seal thickness 100 mm. Plaster and masonry cast walls.

Table A.1.4.1: Plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PP	≤ Ø 110	10.0	FIRESAFE / FSW (2 layers)	**EI 120 U/C**
			FIRESAFE / FSW (4 layers)	**EI 120 U/U**

Table A.1.4.2: Plastic pipes with cables

Type of plastic pipes with cables	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Cable type	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 110	2.7 - 10	FIRESAFE / FSW (2 layers)	Cable ≤ Ø 80 mm (single or bundled). Cable ≤ Ø 21 mm bundled ≤ Ø 100 mm	**EI 90 U/C** **E 120 U/C**
PP					
PVC (U/C)					

11. Example with sizing table for number of FIRESAFE / FSW layers around plastic pipes

FIRESAFE / FSW installed in small openings, directly installed in construction. Plaster and masonry cast walls.

Table A.1.5.1: Plastic pipes

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE-X / ABS / SAN+PVC	≤ Ø 40	2.3 - 3.7	FIRESAFE / FSW (2 layers)	**EI 120 U/U**
	≤ Ø 110	2.7 - 10		**EI 120 U/C**
PP	≤ Ø 40	2.3 - 3.7		**EI 120 U/U**
		5.5		**EI 120 U/C**
	≤ Ø 110	3.4		
PVC (U/C)	≤ Ø 40	1.8 - 3.7		**EI 120 U/U**
	≤ Ø 110	1.6		**E 120 U/C, EI 90 U/C**
		1.6 - 8.1		**EI 90 U/C**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm

FIRESAFE / FSW

Firestop Wrap for Penetration Seals

Table A.1.5.1: Plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 125	3.9	FIRESAFE / FSW (3 layers)	**EI 120 U/C**
		3.9 - 4.8		**EI 90 U/C, E 120 U/C**
PP		3.1		**EI 120 U/C**
		3.1 - 11.4		**EI 90 U/C, E 120 U/C**
PVC (U/C)		3.7 - 4.8		

Table A.1.5.1: Plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PP	≤ Ø 110	10	FIRESAFE / FSW (4 layers)	**EI 120 U/U**
		10 - 14.6		**EI 90 U/U**
	≤ Ø 160	14.6		
PE(-HD) / PE-X / ABS /				**EI 90 U/C**
PVC (U/C)		5.0		**EI 90 U/C, E 120 U/C**
		5.0 - 14.6		**EI 90 U/C**

Table A.1.5.1: Plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 125	11.4	FIRESAFE / FSW (5 layers)	**EI 120 U/U**
PVC (U/C)		9.2		

FIRESAFE / FSW installed in small openings, directly installed in construction. Plaster and masonry cast walls.

Table A.1.5.2: Plastic pipes with cables

Type of plastic pipes with cables	Pipe diameter Ø [mm]	Number of layers	Cable type	Rating in minutes
PE(-HD) / PE / ABS / SAN+PVC	≤ Ø 110	FIRESAFE / FSW (2 layers)	Cable ≤ Ø 80 mm (single or bundled). Cable ≤ Ø 21 mm bundled ≤ Ø 100 mm	**EI 90 U/C** **E 120 U/C**
PP				
PVC (U/C)				

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm

For more sizing tables or further information, see ETA 25/0234 or the Firesafe webpage **www.firesafe.no.**

FIRESAFE / FSW

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FIRESAFE / FSW installed in small openings, directly installed in construction. Plaster and masonry cast walls.

Table A.1.5.3: Sound-dampening plastic pipes.

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Raupiano Plus	≤ Ø 50	1.8 - 2.7	FIRESAFE / FSW (2 layers)	**EI 120 U/C**
	≤ Ø 110	2.7		
Geberit Silent dB20	≤ Ø 56	3.2 - 6.0		
	≤ Ø 110	6.0		
Wavin SiTech+	≤ Ø 40	2.0		**EI 120 U/U**
		2.0 - 3.4		**EI 120 U/C**
	≤ Ø 50	1.8		**EI 120 U/U**
	≤ Ø 110	3.4		**EI 120 U/C**
Poloplast PoloKal NG	≤ Ø 50	2.0		

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Poloplast PoloKal NG	≤ Ø 110	3.4	FIRESAFE / FSW (4 layers)	**EI 120 U/C**
Raupiano Plus		2.7		**EI 120 U/U**
	≤ Ø 160	4.0		**EI 90 U/C, E 120 U/C**

Type of plastic pipe	Pipe diameter Ø [mm]	Pipe wall thickness t [mm]	Number of layers	Rating in minutes
Raupiano Plus	≤ Ø 160	3.9	FIRESAFE / FSW (6 layers)	**EI 120 U/U**
Poloplast PoloKal NG		4.9		**EI 90 U/C, E 120 U/C**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm

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FIRESAFE / FSW

Firestop Wrap for Penetration Seals

12. Example with sizing table for number of FIRESAFE / FSW layers around insulated metal pipes

FIRESAFE / FSW installed to FIRESAFE / FSB1 Firestop Board system 2 x 50 mm in plaster and masonry cast walls.

Table A.1.6.1: Steel and copper pipes with elastic pipe insulation.

Pipe type	Pipe diameter Ø [mm]	Pipe thickness t [mm]	Insulation type	Insulation thickness [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 12	≥ 1.0	Armaflex AF (min. Rating B-s3, d0; BL-s3, d0)	9	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 120 C/U, E 180 C/U**
	≤ Ø 35	≥ 1.1		35			**EI 90 C/U, E 120 C/U**
				60		FIRESAFE / FSW (3 layers)	**EI 120 C/U**
	≤ Ø 54	≥ 1.5		38		FIRESAFE / FSW (2 layers)	**EI 90 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		15			**EI 60 C/U, E 120 C/U**
	≤ Ø 219.1	≥ 4.0		32			**EI 45 C/U, E 120 C/U**
					CS		**EI 120 C/U**
	≤ Ø 324	≥ 3.7			LS 400 / CS		**EI 60 C/U, E 120 C/U**
				50		FIRESAFE / FSW (3 layers)	**EI 45 C/U, E 180 C/U**
					CS		**EI 90 C/U, E 180 C/U**

Pipe type	Pipe diameter Ø [mm]	Pipe thickness t [mm]	Insulation type	Insulation thickness [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 22	≥ 1.0	Kaiflex ST (min. Rating B-s3, d0; BL-s3, d0)	9 - 32	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 90 C/U, E 120 C/U**
				32			**EI 120 C/U**
	≤ Ø 54	≥ 1.5		13 - 32			**EI 30 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		13			**EI 60 C/U, E 120 C/U**
	≤ Ø 168.3	≥ 4.5		13 - 32			**EI 45 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		
Insulation Configuration /L [mm]:	**LS:** Specified insulation applied locally with specified length ≥ 400 mm out from wall/floor on both sides and in the duct itself. **CS:** Specified pipe insulation continuous on both sides, as well as in the duct itself.		

FIRESAFE / FSW

Firestop Wrap for Penetration Seals

13. Example with sizing table for number of FIRESAFE / FSW layers around insulated metal pipes

FIRESAFE / FSW installed in FIRESAFE gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1.
Fire seal thickness 100 mm. Plaster and masonry cast walls.

Table A.1.9.1: Steel and copper pipes with elastic pipe insulation.

Pipe type	Pipe diameter Ø [mm]	Pipe thickness t [mm]	Insulation type	Insulation thickness [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 12	≥ 1.0	Armaflex AF (min. rating B-s3, d0 BL-s3, d0)	9	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 120 C/U, E 180 C/U**
	≤ Ø 35	≥ 1.1		35			**EI 90 C/U, E 120 C/U**
				60			**EI 120 C/U**
	≤ Ø 54	≥ 1.5		38			**EI 90 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		15			**EI 60 C/U, E 120 C/U**
	≤ Ø 219.1	≥ 4.0		32			**EI 45 C/U, E 120 C/U**
					CS		**EI 120 C/U**
	≤ Ø 324	≥ 3.7			LS 400 / CS		**EI 60 C/U, E 120 C/U**
				50		FIRESAFE / FSW (3 layers)	**EI 45 C/U, E 180 C/U**
					CS		**EI 90 C/U, E 180 C/U**

Pipe type	Pipe diameter Ø [mm]	Pipe thickness t [mm]	Insulation type	Thickness insulation [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 22	≥ 1.0	Kaiflex ST (min. Rating B-s3, d0 BL-s3, d0)	9 - 32	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 90 C/U, E 120 C/U**
				32			**EI 120 C/U**
	≤ Ø 54	≥ 1.5		13 - 32			**EI 30 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		13			**EI 60 C/U, E 120 C/U**
	≤ Ø 168.3	≥ 4.5		13 - 32			**EI 45 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		
Insulation Configuration /L [mm]:	**LS:** Specified insulation applied locally with specified length ≥ 400 mm out from wall/floor on both sides and in the duct itself. **CS:** Specified pipe insulation continuous on both sides, as well as in the duct itself.		

FIRESAFE / FSW

Firestop Wrap for Penetration Seals

14. Example with sizing table for number of FIRESAFE / FSW layers around insulated metal pipes

FIRESAFE / FSW installed in small openings, directly installed in construction. Plaster and masonry cast walls.

Table A.1.10.1: Steel and copper pipes with elastic pipe insulation.

Pipe type	Pipe diameter Ø [mm]	Pipe thickness t [mm]	Insulation type	Insulation thickness [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 12	≥ 1.0	Armaflex AF (min. rating B-s3, d0 BL-s3, d0)	9	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 120 C/U, E 180 C/U**
	≤ Ø 35	≥ 1.1		35			**EI 90 C/U, E 120 C/U**
				60			**EI 120 C/U**
	≤ Ø 54	≥ 1.5		38			**EI 60 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		15			**EI 60 C/U, E 120 C/U**
	≤ Ø 219.1	≥ 4.0		32			**EI 45 C/U, E 120 C/U**
					CS		**EI 120 C/U**
	≤ Ø 324	≥ 3.7			LS 400 / CS		**EI 60 C/U, E 120 C/U**
				50		FIRESAFE / FSW (3 layers)	**EI 45 C/U, E 180 C/U**
					CS		**EI 90 C/U, E 180 C/U**

Pipe type	Pipe diameter Ø x t [mm]	Pipe thickness t [mm]	Insulation type	Thickness insulation [mm]	Insulation config. L / [mm]	Number of layers	Rating in minutes
Copper Stainless steel Steel Cast iron	≤ Ø 22	≥ 1.0	Kaiflex ST (min. Rating B-s3, d0 BL-s3, d0)	9 - 32	LS 400 / CS	FIRESAFE / FSW (2 layers)	**EI 90 C/U, E 120 C/U**
				32			**EI 120 C/U**
	≤ Ø 54	≥ 1.5		13 - 32			**EI 30 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**
Stainless steel Steel Cast iron	≤ Ø 114.3	≥ 3.6		13			**EI 60 C/U, E 120 C/U**
	≤ Ø 168.3	≥ 4.5		13 - 32			**EI 45 C/U, E 120 C/U**
				32			**EI 60 C/U, E 120 C/U**

E:	Integrity	**FW-100:**	Plaster walls with a thickness of ≥ 100 mm
I:	Thermal insulation	**RW-100:**	Masonry cast walls with a thickness of ≥ 100 mm
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness		
Insulation Configuration /L [mm]:	**LS:** Specified insulation applied locally with specified length ≥ 400 mm out from wall/floor on both sides and in the duct itself. **CS:** Specified pipe insulation continuous on both sides, as well as in the duct itself.		

FIRESAFE / FSW

Firestop Wrap for Penetration Seals

15. Example with sizing table for number of FIRESAFE / FSW layers around plastic pipes with cables

FIRESAFE / FSW installed in FIRESAFE gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1.
Fire sealant thickness ≥ 100 mm floor underside. Masonry cast construction floor ≥ 150 mm.

Table B.1.1.1: Plastic pipes with cables

Type of plastic pipes with cables	Pipe diameter Ø x [mm]	Pipe thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE-X / ABS / SAN+PVC	≤ Ø 110	2.7 - 10	FIRESAFE / FSW (2 layers)	**EI 180 U/C**
PP				
PVC(-U/-C)				
Cable ≤ Ø 21 mm (single or bundled)	Without pipe	Without pipe	Without pipe	**EI 180**
Cable ≤ Ø 21 mm bundled ≤ Ø 100 mm	-	-	-	
Cable ≤ Ø 50 mm.	-	-	-	**EI 60, E 120**

E:	Integrity	**RF-150:** Masonry cast floors with a thickness of ≥ 150 mm
I:	Thermal insulation	
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness	

16. Example with sizing table for number of FIRESAFE / FSW layers around plastic pipes and cables

FIRESAFE / FSW installed in FIRESAFE gypsum-based fire sealant in accordance with EN 13501-1: Fire rating A1.
Fire sealant thickness ≥ 150 mm floor underside. Masonry cast construction floor ≥ 150 mm.

Table B.1.2.1: Plastic pipes with cables

Type of plastic pipes with cables	Pipe diameter Ø x t [mm]	Pipe thickness t [mm]	Number of layers	Rating in minutes
PE(-HD) / PE-X / ABS / SAN+PVC	≤ Ø 110	2.7 - 10	FIRESAFE / FSW (2 layers)	**EI 180 U/C**
PP				
PVC(-U/-C)				
Cable ≤ Ø 21 mm (single or bundled)	Without pipe	Without pipe	Without pipe	**EI 180**
Cable ≤ Ø 21 mm bundled ≤ Ø 100 mm	-	-	-	
Cable ≤ Ø 50 mm.	-	-	-	**EI 60, E 120**

E:	Integrity	**RF-150:** Masonry cast floors with a thickness of ≥ 150 mm
I:	Thermal insulation	
Ø x (t) [mm]:	Pipe diameter x **(t)** pipe wall thickness	

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TECHNICAL DATA SHEET

Date: 30/07/2025
Rev.: 0
Prepared by: PP
Checked by: HKE
European approvals:
ETA No: 25/0234 Penetration Seals
DoP No.: FS/PP/FSW- 30/07/2025
CE 2821

17. Explanation of abbreviations for pipe ends (cf. EN 1366-3:2021)

Instructions:

The test configuration will determine the use of pipes. Before a type of pipe undergoes testing, the intended use of the pipes must be taken into account. Where will the plastic pipes be used in practice?

Test standard EN 1366-3 provides requirements for this. This will decide whether or not the pipe must be capped.

See the test configuration in **Table 1** for flammable plastic pipes and **Table 2** for metal pipes.

During fire testing, the ends of the pipe and fire sealing systems must be tested to determine whether the pipes must be capped at one or both ends, or kept fully uncapped in the building. Pressure, smoke, and hot gases must not be able to pass through the pipes or fire sealing systems in the event of a fire.

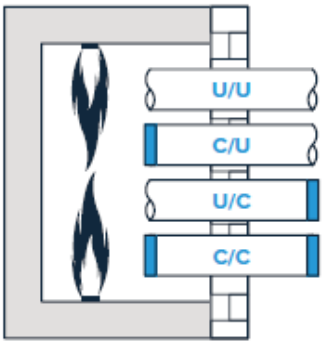

Table 1 - Test configuration for plastic pipes

Test setup	Pipe end		Permitted use			
	In oven	Outside of oven	U/U	C/U	U/C	C/C
U/U	Uncapped	Uncapped	✓	✓	✓	✓
C/U	Capped	Uncapped	X	✓	✓	✓
U/C	Uncapped	Capped	X	X	✓	✓
C/C	Capped	Capped	X	X	X	✓

*** U/U tested, floor also tested with all pipe ends.**

Table 2 - Test configuration for metal pipes

Test setup	Pipe end		Permitted use		
	In oven	Outside of oven	U/C	C/U	C/C
U/C *	Uncapped	Capped	✓	✓	✓
C/U	Capped	Uncapped	X	✓	✓
C/C	Capped	Capped	X	X	✓

*** U/C tested, floor also tested with U/U.**

Plastic pipes

Table H.1 on the next page displays some examples of pipes and intended uses where the end of the pipe is capped or not. The table cannot take all possible usage options into account. When deciding whether to cap the end of the pipe or to let it remain uncapped, several factors must be considered: is the system under pressure, and is the system ventilated?

Consider the service type of the pipe to determine whether it should be capped. If national regulations provide other requirements than those given in table H1, then these regulations shall apply.

Table H.1. Plastic pipes

Pipe type, type of service	Pipe end		Test setup
	In oven	Outside of oven	
Rainwater drainage	Uncapped	Uncapped	**U/U**
Sewage, ventilated	Uncapped	Uncapped	**U/U**
Sewage, non-ventilated	Uncapped	Capped	**U/C**
Gas pipes, drinking water pipes, hot water pipes	Uncapped	Capped	**U/C**
Capped pipe systems with permanent water pressure, water supply	Capped	Capped	**C/C**

Pipe ends C/U or U/C apply to wastewater pipes with a water trap in accordance with table H.1 in EN 1366-3.
Pipe ends C/C apply to pipes with permanent water pressure, e.g., pipes for water supply following table H.1 in EN 1366-3.

Non-flammable metal pipes

Metal pipes are usually capped in the testing oven. As the metal will not melt away, it is assumed that there will not be an open end on the pipes in the event of a fire. It is therefore assumed that the suspension system will remain in place. If the pipes are supported by a suspension system that does not have a fire rating, or if there are waste chutes, the metal pipes will not be capped in the testing oven, as shown in table **H.2**. **See next page.**

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Table H.2. Metal pipes or non-flammable pipes

Pipe type, type of service	Pipe end		Test setup
	In oven	Outside of oven	
Service support – fire rated suspension system[a]	Capped	Uncapped	**C/U**
Service support – suspension system without fire rating	Uncapped	Capped	**U/C**
Chute for waste disposal	Uncapped	Capped	**U/C**
[A] must be documented via fire testing or calculations (e.g. Euro codes)			

18. Requirements for the properties of structural components

Flexible plaster walls
The minimum thickness for walls must be 100 mm, and the wall must consist of steel or wood studs* with at least 2 layers of plaster cladding on each side, thickness 12.5 mm.

Masonry – cast walls
The minimum thickness for walls is 75 mm and the wall must consist of concrete, aerated concrete, or masonry with a density of at least 350 kg/m^3 or timber (CLT) with a density of at least 400 kg /m^3.

Masonry – cast floors or CLT
The minimum thickness for floors is 150 mm and the wall must consist of concrete, aerated concrete, or masonry with a density of at least 400 kg/m^3 or cross-laminated timber (CLT) with a minimum thickness of 140 mm and a density of at least 400 kg /m^3.

* There must be a distance of at least 100 mm from each part of the penetration joint to the three studs, and the aperture between the penetration joint and the studs must be covered. The gap between the penetration joint and the timber studs must be fitted with at least 100 mm of insulation with fire classification A1 or A2 (in accordance with EN 13501-1).
The construction must be classified in accordance with EN 13501-2 for the specified fire rating.

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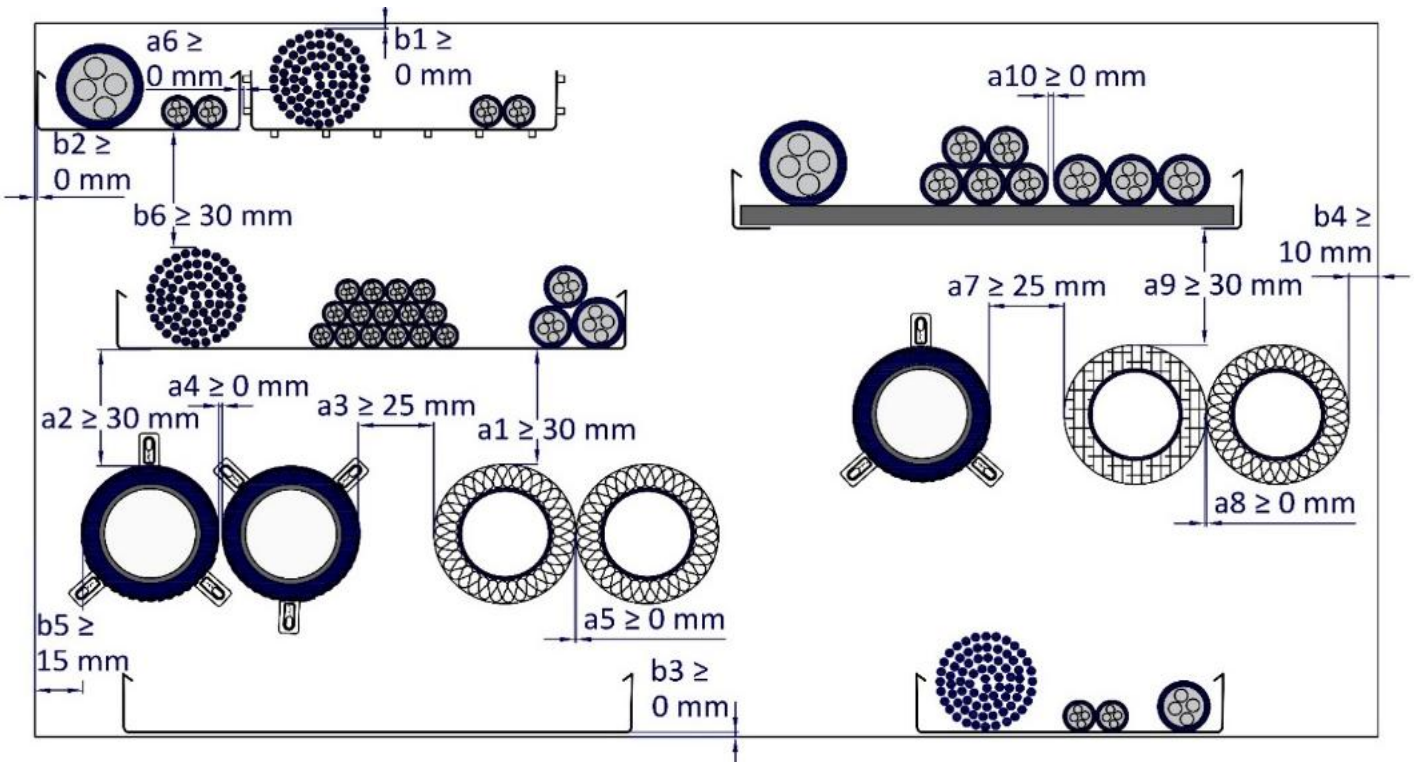
19. Distances

The minimum permitted distance between adjacent seals / openings is 100 mm when the installation seals are < 300 x 300 mm. A distance of 200 mm will be required for larger seals.
Mixed penetration seals, mutual distances and distances to recess edges. See the table and figure below.

Figure no.	Type of installation	Distance [mm]
a1	Distance between cables / cable trays and metal pipes.	≥ 30
a2	Distance between cables / cable trays and plastic pipes.	≥ 30
a3	Distance between metal pipes and plastic pipes.	≥ 25
a4	Distance between plastic pipes.	≥ 0
a5	Distance between metal pipes with non-flammable insulation.	≥ 0
a6	Horizontal distance between cable trays.	≥ 0
a7	Distance between plastic pipes and pipes with flammable insulation.	≥ 25
a8	Distance between pipes with non-flammable insulation and pipes with flammable insulation.	≥ 0
a9	Distance between cables / cable trays and pipes with flammable insulation.	≥ 30
a10	Distance between pipes stacked together or assembled in rows.	≥ 0
b1	Distance between cables / cable trays and upper seal edge.	≥ 0
b2	Distance between cables / cable trays and side seal edge.	≥ 0
b3	Distance between cables / cable trays and bottom seal edge.	≥ 0
b4	Distance between metal pipes and all seal edges.	≥ 10
b5	Distance between plastic pipes and all seal edges.	≥ 15
b6	Vertical distance between cable trays and other installations.	≥ 30



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20. Available documents and approvals for FIRESAFE / FSW

Technical documents
✓ Product data sheet (PDS)
✓ Technical data sheet (TDS)
✓ Safety data sheet (SDS)
✓ CE marking
✓ Emissions reports
✓ Acoustics report

Approvals
✓ Tested in accordance with EN 1366-3
✓ Classification in accordance with EN 13501-1/2
✓ Certified in accordance with EAD 350454-00-1104
✓ ETA: 25/0234. Penetration Seals
✓ Declaration of Performance (DoP)

The documents listed above can be obtained from your Firesafe contact person, via QR code (Digital Pass), or on the Firesafe website: **www.firesafe.no**.